MONTGOMERY COUNTY

UNDERWATER RESCUE TEAM

DIVING GUIDELINES

1999 Revision

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SECTION 1 -- GENERAL GUIDELINES

1 MISSION STATEMENT

The Underwater Rescue Team is responsible for:

- The search and rescue of victims in the aquatic environment;
- The search, recovery and preservation of criminal evidence, not limited to cadavers, weapons, transportation vehicles, and other objects;
- The creation and implementation of various water safety programs, pertaining to the aquatic environment within the boundaries of Montgomery County, Maryland.

1.1 PURPOSE

1.1.1 THE PUBLIC SAFETY DIVING GUIDELINES: The purpose of these public safety diving guidelines is to ensure that all diving under the auspices of the Underwater Rescue Team are conducted in manner that maximizes protection of Public Safety Divers from accidental injury and/or illness. The purpose of this document is to set forth minimal guidelines for the establishment of recognized public safety diving programs within the Department of Fire and Rescue Services (DFRS) for the conduct of these programs. In addition, to establish the basic regulations and procedures for safety in public safety diving operations.

1.1.2 LIABILITY: In adopting the guidelines set forth in this document, the Department of Fire and Rescue Services assumes no liability except as otherwise imposed by the law. Each diver is assumed under this policy to be voluntarily performing activities for which he or she assumes all risks, consequences, and potential liability. Each diver is responsible for maintaining a level of knowledge and training to enable informed appraisal of the calculated risks involved in any diving activity undertaken. In producing this document, the Underwater Rescue Team assumes no liability for the activity or liability of any person who may use this document or from which any consequences may arise. The editors of this document make no claim that the use of this document will eliminate or reduce the severity of injuries incurred as a result of public safety diving activities. All reasonable efforts have been made to include state of the art information as of the date of publication.

1.2 PUBLIC SAFETY DIVING GUIDELINES

The purpose of the Underwater Rescue Team's public safety diving guidelines are to provide for the development, and implementation of guidelines and procedures that will enable the Underwater Rescue Team to meet the requirements of local environments and conditions. The Underwater Rescue Team's diving guidelines shall include but not be limited to:

1.2.1 For each diving mode in which public safety diving is engaged:

Safety procedures for the diving operation;

Responsibilities of the dive team members;

Equipment use and maintenance procedures

1.2.2 Emergency procedures:

Emergency evacuation and medical treatment procedures for each diving location, and emergency procedures to locate and transport a diver(s) to an appropriate emergency medical facility.

1.3 CONTROL

1.3.1 PUBLIC SAFETY DIVING DEFINED: Public safety diving is considered to be all diving performed by individuals necessary to and part of a fire, police or public safety activity conducted in conjunction with any project under the jurisdiction of the Department of Fire and Rescue Services.

1.3.2 LEVEL OF PROFICIENCY TYPES

1.3.2.1 The Underwater Rescue team requires that no person should engage in public safety diving unless that person has had a level of training that enables such person to perform proficiently as evaluated by the Training Officer of the Underwater Rescue Team. The two types of proficiency levels are:

1.3.2.1.1 Probationary Public Safety Diver Level: This level signifies that a diver has completed and been certified as at least a basic diver through a nationally or internationally recognized certifying agency. This person has not completed probation. See Section 3 for more details. These personnel will not dive in rescue mode. Probationary Public Safety Divers may be used, under structured supervision, to perform functions for which they have been trained.

1.3.2.1.2 Public Safety Diver Level: This level of proficiency indicates that a diver has completed probation and it's associated training. This level allows Underwater Rescue Team personnel to dive as a fully qualified diver within the Underwater Rescue Team's diving guidelines. This level will be issued by the Team Coordinator at the satisfactory completion of probation.

1.4 EQUIPMENT

All diving equipment used by public safety divers and probationary public safety divers shall conform to the standards set forth in this document.

1.5 SITES

The regulations herein should be observed at all locations where public safety diving is conducted.

1.6 RISK MANAGEMENT

The Underwater Rescue Team is committed to the safety and welfare of its personnel. This risk management plan includes at least the following:

1.6.1 Risk Identification: Potential problems; The following are risks associated with public safety diving: Asphyxiation, Cerebral Arterial Gas Embolism, Decompression Sickness, Dehydration, Drowning, Entanglement, Miscellaneous Soft Tissue Injuries, Non-pulmonary Barotrauma, Pulmonary Barotrauma, and Toxic Gas Inhalation.

1.6.2 Risk Evaluation: Likelihood of occurrence of a given problem and severity of its consequences; The probability of the above listed potential problems occurring are relatively low. All the above problems are normal risk factors in sport scuba diving. The incidence of problems compared to the number of certified divers is extremely low, making scuba diving a very safe sport. These potential problems are an increased risk for the Public Safety Diver. This is due to many factors including, but not limited to: entanglement, fatigue, improper gas supply, inadequate training, lack of chronological control, lack of site controls, reduced manual dexterity, reduced visibility, temperature extremes, stress and weather. The occurrence of a potential problem has the possibility to be catastrophic, causing severe injury or death to the Public Safety Diver. The expense of such an occurrence would be costly, as would any other Department of Fire and Rescue Services non-diving injury/death.

1.6.3 Risk Control Techniques: Solutions for elimination or mitigation of potential problems and implementation of the best solution;

1.6.3.1 Asphyxiation -- To decrease the risk of breathing a cylinder completely empty, the following safety measures will be implemented: Maximum diving depth will be limited to seventy-five (75) feet. A redundant breathing gas supply will be used by way of pony bottle. No personnel will dive with less than 2800 psi tank pressure when starting, and will surface with at least 1000 psi tank pressure remaining. No personnel should dive more than twenty (20) minutes at a time. Both Line Tender and Diver will be aware of tank pressure at five (5) minute intervals, checking and recording such pressures.

1.6.3.2 Cerebral Arterial Gas Embolism -- To decrease this risk the following safety measures will be implemented: All dry suits will have an automatic dump valve to slow or prevent a rapid ascent. During routine ascents, a maximum ascent rate of thirty (30) feet per minute (fpm) should be used.

1.6.3.3 Decompression Sickness -- To decrease this risk: No diver will purposely violate the U. S. Navy Dive Tables. During routine ascents, a maximum ascent rate of thirty (30) feet per minute (fpm) will be used. No personnel should dive more than twenty (20) minutes at a time, with at least twenty (20) minute surface interval, or as allowed by recognized dive tables. Maximum diving depth will be limited to seventy-five (75) feet. Multi-day diving and repetitive dives should not be performed by individual divers. All dives not in the rescue mode, divers will execute a safety stop at ten (10) feet for three (3) minutes.

1.6.3.4 Dehydration -- To decrease this risk all personnel should practice pre-hydration during warm weather. During rest periods personnel should practice hydration and post dive hydration whenever possible. When necessary, the safety diver will stage in the water to prevent overheating.

1.6.3.5 Drowning -- To decrease this risk all personnel should, through regularly scheduled training, become comfortable and proficient with their equipment and skill level. All personnel, with the exception of a diver who is donning/doffing or wearing a buoyancy compensator, will wear a properly fitting USGC approved Type III or Type V personal flotation device. All personnel will be trained in the proper method of dropping weight to increase buoyancy. Blackout pool training will be routinely performed to reduce panic probability. A standby

diver will be in position and ready to immediately render assistance in all diving modes.

1.6.3.6 Entanglement -- To decrease this risk; Personnel will streamline all equipment to maintain a low profile. In the event of entanglement, each diver will have multiple extraction tools including knife and shears. Standby divers will have additional extrication tools such as wire or bolt cutters at their disposal.

1.6.3.7 Miscellaneous Soft Tissue Injuries -- To decrease this risk personnel should wear gloves to protect their hands. Care should be exercised when working in an environment that would cause soft tissue injuries.

1.6.3.8 Non-Pulmonary Barotrauma -- To decrease this risk no personnel should dive if feeling ill, with sinus congestion, sore throat or any other condition that might prohibit the equalization of enclosed body cavities.

1.6.3.9 Pulmonary Barotrauma -- To decrease this risk ***no breath holding or skip breathing will be allowed***. See safety measures listed above under “Cerebral Arterial Gas Embolism”.

1.6.3.10 Toxic Gas Inhalation -- To decrease this risk Scuba breathing gas cylinders will only be filled by a compressor that meets the standards as stated in Section 6 Breathing Air.

1.6.4 Risk Management Monitoring -- An annual review of accidents, near accidents and policy violations will be reviewed to determine if risk management plans are working as desired. If the risk management plan appears deficient, improvements will be made.

1.7 ORGANIZATION

1.7.1 Underwater Rescue Team Coordinator:

1.7.2 The Department of Fire Rescue Services, which operates a Public Safety Diving Program, will appoint a Team Coordinator who:

1.7.2.1 Shall forward recommendations for commendations and disciplinary action to the DFRS Specialty Teams Coordinator;

1.7.2.2 Shall review and alter public safety diving guidelines annually and as requested by team personnel;

1.7.2.3 Shall review and approve training programs as suggested by the Training Officer;

1.7.2.4 Shall direct the Training Officer to suspend training programs that are considered to be unsafe or unwise;

1.7.2.5 Shall review and approve equipment selection, purchase, and use, as submitted by the Training Officer and/or other team personnel;

1.7.2.6 Shall create and submit for approval fiscal year budget suggestions;

1.7.2.7 Shall administer the approved budget in coordination with the DFRS Specialty Teams Coordinator;

1.7.2.8 Shall review and approve facilities for the inspection and maintenance of diving associated equipment as recommended by the Maintenance Officer;

1.7.2.9 Will select committees and assign their missions as appropriate;

1.7.2.10 Shall ensure that the Underwater Rescue Team air filling station(s) meet air quality standards as described in Section 6;

1.7.2.11 Shall submit an annual report to the DFRS Specialty Teams Coordinator;

1.7.2.12 Shall have operational authority for the Underwater Rescue Team's diving program, including the conduct of training and issuance of Public Safety Diver levels and approval of training dive plans, as recommended by the Training Officer;

1.7.2.13 Shall ensure compliance with this document and all relevant regulations;

1.7.2.14 Shall review and approve the Training Officer's recommendations for qualified persons as defined in Appendix A and Sections 1.3, 3 and 4 to assist in administering the training program;

1.7.2.15 Will maintain a current roster of team personnel;

1.7.2.16 Will issue response/alpha pagers to team personnel after the completion of probation, as supplies allow. Will request additional pagers and send damaged pagers to the radio shop.

1.7.3 Training Officer;

1.7.3.1 Shall recommend, to the Team Coordinator, the issue, reissue or revocation of Public Safety Diver status;

1.7.3.2 Shall locate/create and recommend, to the Team Coordinator, training programs through which Probationary Public Safety Divers can satisfy the requirements of these public safety diving guidelines;

1.7.3.3 May permit, after approval from the Team Coordinator, portions of the training program to be administered by qualified persons, as defined in Appendix A and Section 1.3;

1.7.3.4 Shall plan, administer and record one six hour training session per month. The plan is to be used four times during the month, once for each training day for a total of 288 training hours per fiscal year;

1.7.3.5 Shall ensure that training exercises are conducted in accordance with the established public safety diving guidelines and supervised by qualified persons, as defined in Appendix A;

1.7.3.6 Shall maintain training records for each member indicating dates, subjects covered, satisfactory completion and any certifications achieved.

1.7.4 Maintenance Officer:

1.7.4.1 Shall recommend, to the Team Coordinator, facilities for the inspection and maintenance of diving associated equipment;

1.7.4.2 Shall be responsible for the maintenance/required service of the Underwater Rescue Team's equipment;

1.7.4.3 Shall be certified in basic equipment maintenance by at least one manufacturer in regulators and one in cylinders, or delegate repairs to an assistant, or facility with this certification;

1.7.4.4 Shall log all equipment taken out of service into the vehicle log and to let all team personnel know about the removal of these items;

1.7.4.5 Shall ensure all diving equipment is serviced as required by manufacturers recommendation, warranty requirements and recognized standards.

1.7.5 Shift Officer:

1.7.5.1 The Shift Officer is the senior, on duty, Underwater Rescue Team Officer. This is an administrative, as well as, operational position.

1.7.5.2 Shall suspend diving operations which are considered to be unsafe or unwise;

1.7.5.3 Shall track the availability/staffing of team personnel each shift;

1.7.5.4 Shall submit a daily activity report to the Team Coordinator for each scheduled drill date;

1.7.5.5 Shall contact the scheduling office to assist with personnel details for scheduled drill dates as necessary;

1.7.5.6 Shall monitor local weather conditions as they pertain to water rescue and to notify all fire rescue stations of these National Weather Service watches/warnings;

1.7.5.7 Shall have the option of assuming the position of Diving Supervisor after arriving on the scene of an incident;

1.7.5.8 Shall follow the Training Officer's prepared drill topic or select, supervise and safely manage another drill topic, as appropriate, with a notation in the DAR indicating the alternate drill;

1.7.5.9 Shall notify the Team Coordinator of any personnel outstanding performance or disciplinary problems.

1.7.6 Diving Supervisor:

The Diving Supervisor is the Underwater Rescue Team operational leader on an incident or training where diving will be conducted. On incident response, the first arriving non-probationary public safety diver will assume the position of Diving Supervisor as in the fire/rescue incident command system.

1.7.6.1 Shall suspend diving operations that are considered to be unsafe or unwise;

1.7.6.2 Shall ensure that all safety and operational requirements are followed by team personnel;

1.7.6.3 Shall ensure that each diver's personal log is completed at the end of each dive and that an after action report is sent to the Team Coordinator within 72 hours after each incident. The

after action report shall contain the date, reporting person, incident number, location, a summary of the incident, personnel report including pay status, and lessons learned;

1.7.6.4 Shall at the completion of each incident/dive, ensure that all equipment is returned to service and ready for use;

1.7.6.5 Shall not assume the role of a diver;

1.7.6.6 Will have the authority to cancel diving operations;

1.7.6.7 Will conduct a pre-dive briefing prior to commencing diving operations as stated in Section 2.31;

1.7.6.8 Will formulate a dive plan as stated in Section 2.31 and 2.32;

1.7.6.9 Will conduct a post dive debriefing as stated in Section 2.35;

1.7.6.10 Will ensure that team personnel do not engage in any activities for which they are not qualified;

1.7.6.11 Will act as a Sector Officer to the Incident Commander and will consult with him/her on the Underwater Rescue Team's current and planned operations including periodic updates;

1.7.6.12 Shall ensure that each diver exposed to hyperbaric pressures receives a post dive neurological assessment, as stated in Appendix B, this task may be delegated to Underwater Rescue Team Safety Officer;

1.7.6.13 Shall compute nationally recognized dive tables for each diver exposed to hyperbaric pressures. This task may be delegated to Underwater Rescue Team Safety Officer;

1.7.6.14 Shall in the event of a diving accident resulting in injury to a diver suspend diving operations, impound, secure and photograph all of the injured diver's and standby diver's gear. Refer to Section 2.4.6 and 2.4.7 for other required actions;

1.7.6.15 Shall assume all responsibilities of the Safety Officer if one is not appointed on an incident.

1.7.7 Safety Officer:

The Safety officer is not normally an operational leader, but should be a Diving Supervisor. This position is a consultant for the Diving Supervisor.

1.7.7.1 Shall Compute nationally recognized dive tables for each diver exposed to hyperbaric pressures;

1.7.7.2 Shall be responsible for administering a post dive neurological assessment to each diver exposed to hyperbaric pressures;

1.7.7.3 Shall in the event of a diver injury coordinate EMS response, treatment and consultation with EMS. EMS treatment personnel should be provided with a written activity, initial complaints, neurological assessment finding and dive table status. The Safety Officer should accompany the injured diver if possible;

1.7.7.4 Shall forward all paperwork to the Diving Supervisor for use in the after action report;

1.7.7.5 Shall evaluate and record each divers condition, respiratory rate if possible, primary cylinder current pressure and depth at five (5) minute intervals as communicated by the line tender:

1.7.7.6 Shall have the authority to disallow any team personnel to dive based on training, medical or other obvious reason;

1.7.7.7 Shall ensure USCG approved personal flotation device usage by all personnel beyond the demarcation line;

1.7.7.8 Shall maintain the Personnel Accountability System on all incidents.

1.7.8 All Team Personnel:

1.7.8.1 Shall clean and properly store all equipment at the completion of each incident/dive;

1.7.8.2 Shall only use Underwater Rescue Team gear on incidents and training dives;

1.7.8.3 Shall not use/borrow Underwater Rescue Team gear without prior written consent of the Team Coordinator;

1.7.8.4 Shall utilize the Underwater Rescue Team pager in a manner that will enable a rapid response;

1.7.8.5 Shall inspect all equipment for proper operation and condition prior to actual use;

1.7.8.6 Will at any time have the right to approach the Team Coordinator for training, equipment, safety and any other matters;

1.7.8.7 Will report any equipment problems to the Diving Supervisor. The person notifying the Diving Supervisor will place the equipment out of service, conspicuously label it as such and report it to the Maintenance Officer as soon as possible;

1.7.8.8 Will notify the Team Coordinator, in writing, of any change in address, telephone number, kelly day or station assignment;

1.7.8.9 Will complete an incident report for each responding vehicle.

1.8 Program Responsibility:

1.8.1 Ultimate Authority: The DFRS Specialty Teams Coordinator, via the Underwater Rescue Team Coordinator, has the ultimate authority for the public safety diving program and related activities. Only the Diving Supervisor may make decisions related to the conduct on a diving operation, unless his /her/ orders are superseded by the Team Coordinator. The Team Coordinator will present a suggested budget and manage each FY budget through consultation with the DFRS Specialty Teams Coordinator.

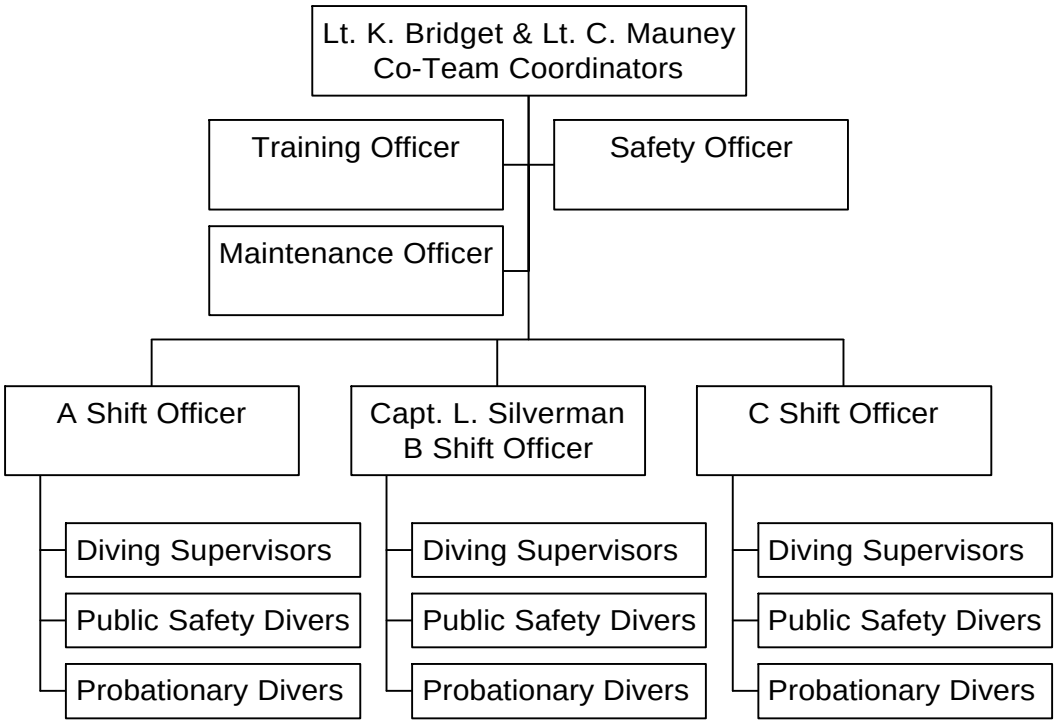
1.8.2 Public Safety Diving Guidelines: Recommendations of change to the public safety diving guidelines shall be made in writing and addressed to the Team Coordinator. The ongoing development and enhancement of these public safety diving guidelines are the joint responsibility of the Underwater Rescue Team personnel, the Underwater Rescue Team Coordinator and the DFRS Specialty Teams Coordinator.

1.9 Instructional Personnel

1.9.1 Qualifications: All personnel involved in diving instruction under the auspices of the Underwater Rescue Team shall present the Training Officer written qualification for the type of instruction offered. Regardless of the certifications held by a potential instructor, the Team Coordinator, via the Training Officer, must evaluate the candidate to ensure instructional skills commensurate with the intended instruction. A particular training class or session might be conducted by and individual who has special expertise or abilities in the subject area whether or not the instructor is associated with a fire/rescue department or is a qualified fire service instructor.

1.9.2 Selection: Instructional personnel will be selected by the Team Coordinator based on input from the Training Officer.

Montgomery County Underwater Rescue Team
Organizational Chart



Standing Committees and Assignments

Guidelines	Instructors	Equipment
Capt. L. Silverman FF R. Steer	Training Officer FF B. Duffer	Maintenance Officer

Current Team Roster

Aug 99

A Shift	B Shift	C Shift
Lt. C. Mauney	Capt L. Silverman (PSTA) *	Lt. K. Bridgett (29)
	Capt. M. Grierson	
	Lt. Stojinski (29)	
	MFR D. Polikoff (29) *	
	FF3 K. Bristol (29-D)	
	FF3 P. Fiackos (R2)	
	FF3 K. Regan (29)	
	FF3 R. Steer (23) #	

( ) indicates station assignment * indicates Dive Supervisor Status # indicates Probationary Member

SECTION 2 -- DIVING REGULATIONS

2 Diving Regulations

2.1 General Policy:

No person shall dive under the auspices of the Underwater Rescue Team unless he/she is at least a current Probationary Public Safety Diver level issued pursuant to the provisions of this document.

2.2 Diving Procedures

2.2.1 Solo Diving Regulation: All diving conducted under the auspices of the Underwater Rescue Team shall be planned and executed in a manner to ensure that every diver, while underwater, maintains constant contact and effective communication with at least one other comparably equipped Public Safety Diver. This buddy system is based upon mutual assistance especially in the case of an emergency.

2.2.2 Enclosed or Confined Spaces: Where an enclosed or confined space is not large enough to accommodate two divers a diver will be positioned at the point of entry and an orientation device will be used. Cavern and cave diving will only be conducted when both divers have the appropriate training and certifications. The recommendations of the National Association for Cave Diving or the National Speleological Society-Cave Diving Section will be used.

2.2.3 Diver's Flag: The diver down flag will be displayed in a manner, which allows all around visibility during all public safety diving operations where the possibility of marine traffic exists. The flag will be illuminated during night diving operations.

2.2.4 Personal Flotation Devices: All personnel with the exception of a diver who is donning/doffing or wearing a buoyancy compensator will wear a properly fitted USCG approved Type III or Type V personal flotation device. Each diver must posses the capability of attaining and maintaining effective buoyancy control. An inflatable exposure suit will not be used as the sole source of buoyancy.

2.2.5 Timing Devices, Depth Gauges and Pressure Gauges: Both members of an un-tethered diving pair must have a submersible time keeping device. The tended diver's line tender must have a time keeping device. All divers must have a submersible depth indicator with a maximum depth marker and a submersible primary tank pressure gauge.

2.2.6 Dive Tables and Computers: A nationally recognized dive table must be at each dive location. Individual divers may also utilize diving computers under the following conditions.

2.2.6.1 Only those dive computers and dive tables that have been studied and approved by the Underwater Rescue Team Coordinator may be utilized within the diving program.

2.2.6.2 The Training Officer will ensure and document that any personnel using a dive computer or dive table is trained to understand basic decompression theory; and to properly and safely operate the dive computer/dive table by which he/she dives.

2.2.6.3 Each diver must rely on dive tables to plan their dive. In rescue mode, this can be performed by the Diving Supervisor or the Safety Officer. Each diver relying on a dive computer to indicate or determine decompression must have his/her own unit. A diver who is not equipped with their own dive computer is prohibited from relying on a computer worn by another diver.

2.2.6.4 On any dive using a non-tethered diving pair, both divers in the pair must follow the most conservative dive computer or dive table.

2.2.6.5 If a non-tethered diver's computer fails to operate properly the dive will be immediately aborted using the appropriate surfacing procedures.

2.2.6.6 A diver should not dive for twenty-four (24) hours prior to the initial activation of a dive computer that will be used to control his/her diving.

2.2.6.7 Once in use, the computer shall not be turned off for twenty-four (24) hours after the final dive or until computer indicates off gassing is completed.

2.2.6.8 Ascent rates shall not exceed thirty (30) feet per minute (fpm).

2.2.6.9 When possible all divers will make a three (3) minute safety decompression stop between at ten (10) feet, especially for dives deeper than 60 feet in depth.

2.2.6.10 No diver shall knowingly violate the no-decompression limits of the dive computer or dive table he/she is using.

2.2.6.11 Repetitive and multi-level dives should start at the maximum planned depth followed by shallow exposures. (Deepest dives first)

2.2.6.12 Multiple deep dives approach the limits of the dive table and dive computer's capability and require special consideration and planning.

2.2.6.13 During dives in which dive computers are being used the divers shall have the capability for redundant depth and time measurements. Throughout all dives the diver shall maintain an awareness of maximum depth and bottom time.

2.2.6.14 In the event of an omitted required decompression, the diver will be placed on 100% oxygen for one hour and receive a post dive neurological assessment. **Returning to depth to decompress after surfacing is not an option.**

2.2.7 Refusal to Dive:

2.2.7.1 The decision to dive rests with each individual diver. Team personnel may refuse to dive without fear of penalty whenever he/she feels it is unsafe or they are unfit to dive.

2.2.7.2 Ultimate responsibility for personnel safety rests with each team member. It is the individual diver's duty and responsibility to refuse to dive or continue diving if in his/her judgment conditions are unsafe, unwise or if diving would violate the precepts of his/her training or the guidelines of this document.

2.2.8 Termination of Dive:

2.2.8.1 It is the responsibility of the individual team member to terminate a dive, without fear of penalty, if he/she feels it is unsafe to continue. If this termination involves the standby diver, the termination should be delayed until another diver is dressed and ready to assume the duties of the standby diver if possible.

2.2.8.2 All dives shall be terminated while there is sufficient primary cylinder pressure, which will permit the diver to:

- Safely reach the surface with at least 1000 psi primary cylinder pressure including a three minute safety stop.
- It is suggested that an ascent to the surface be initiated before the primary cylinder pressure reaches 1250 psi.

2.2.8.3 The Diving Supervisor may terminate an individual dive and/or the entire diving operation at any time for safety or other operational reasons.

2.3 Diving Operations

2.3.1 Diving Supervisor: The Diving Supervisor is the Underwater Rescue Team operational leader on an incident or training where diving will be conducted. On incident response, the first arriving non-probationary Public Safety Diver will assume the position of Diving Supervisor as in the fire/rescue incident command system.

2.3.1.1 Diving shall be coordinated with other activities in the vicinity that are likely to interface with diving operations.

2.3.1.2 Pre-dive briefing; the diving team shall be briefed on:

a) Operational mode, dive objectives and personnel assignments

b) Any hazards or environmental conditions likely to affect the safety of the diving operation

c) Safety procedures and contingency plans

d) Any modifications to diving or emergency procedures necessitated by the specific diving operation

e) Required reporting of any physical abnormalities or adverse effects

f) The relationship between DCS and hydration

2.3.1.3 Pre-dive planning; planning a diving operation shall include considerations related to the safety and health aspects of the following:

a) Diving mode

b) Surface and underwater conditions/hazards

c) Breathing gas supply

d) Thermal protection

e) Diving equipment

f) Personnel assignments

g) Residual inert gas status of personnel

h) Decompression schedules and altitude corrections

i) Entry and exit procedures

j) Emergency procedures

2.3.1.4 Personnel rehabilitation: the Diving Supervisor shall maintain an awareness of the condition of personnel operating within their span of control and ensure that adequate steps are taken

to provide for their safety and health. Additional Underwater Rescue Team personnel or mutual aid divers can be requested through the incident commander.

2.3.2 Dive Plans: Before conducting any diving the Diving Supervisor should consider the following:

a) Personnel involved and their qualifications as well as the Public Safety Diver level held by each participating diver

b) One diver in each buddy team or other operational underwater group shall be the diver in charge

c) Name, telephone and next of kin contact information are kept on file in the Underwater Rescue Team vehicle in the event of an emergency

d) Approximate number of proposed dives

e) Location of proposed dives

f) Anticipated depths and bottom times

g) Current environmental conditions such as temperature, current, visibility, etc.

h) Proposed work, equipment, boats to be employed, repetitive dives and details of any anticipated hazardous conditions

2.3.3 Pre-Dive Safety Checks

2.3.3.1 Diver's responsibility;

a) Each diver and his/her assigned line tender/dive buddy shall conduct a functional check of all diving equipment. Including but not limited to; primary breathing gas supply system, reserve breathing gas supply system, all regulators and thermal protection;

b) It is the diver's responsibility and duty to refuse to dive if in his/her judgment conditions are unsafe, unfavorable or if it would involve violating the precepts of his/her training or the guidelines of this document;

c) No diver shall be required to be exposed to hyperbaric conditions against his/her will except when necessary to treat a pressure related injury;

d) No personnel shall be permitted to dive while having any known condition that is likely to adversely affect the safety and health of the diver or other personnel.

2.3.3.2 Personnel qualifications;

Each diver shall be trained and qualified for the type of diving being performed. Each diver must have experience and training in the following:

a) The use of instruments and equipment relative to the diving activity to be conducted;

b) Dive planning and emergency procedures;

c) Diver rescue techniques, CPR, oxygen administration, and other diving related emergency care;

d) Diving related physics and physiology, as well as recognition of pressure related injuries;

e) Techniques of the assigned diving mode;

f) Alert to the potential hazards of flying after diving;

g) Personnel who have not met the above conditions or who are Probationary Public Safety Divers should not perform these duties in the rescue mode. These personnel might however, be utilized under structured supervision to perform functions for which they have been trained.

2.3.4 Post Dive Checks: At the completion of a dive each diver shall:

2.3.4.1 Report any physical problems or symptoms of a pressure related injury;

2.3.4.2 Perform an equipment check and report any defective gear to the Diving Supervisor. Place defective gear out of service, conspicuously label it as such and notify the Maintenance Officer when possible;

2.3.4.3 Complete a post dive form documenting the diver's medical findings;

2.3.4.4 Remain awake for at least one hour after diving and submit to a neurological assessment, as described in Appendix B, performed by the Safety Officer or his/her designee.

2.3.5 Post Dive Debriefing: At the completion of each incident, a short debriefing will be held by the Diving Supervisor. This should not be a step by step review of the incident. This is a time for recommendations, constructive criticism and praise. It is also the time to deal with post traumatic stress. The Diving Supervisor may decide to contact the DFRS Critical Incident Stress Debriefing Team (CISD).

The Diving Supervisor should take notes of the brief and add them to the after action report.

2.3.6 Emergencies -- Deviation from Guidelines: Personnel may deviate from the requirements of these guidelines to the extent necessary to prevent or minimize a situation that is likely to cause death, serious physical harm or major environmental damage. A written report of such actions must be submitted to the Team Coordinator, within forty-eight (48) hours of the guidelines violation, by the Diving Supervisor. The Diving Supervisor should describe the circumstances, actions, violations, justifications and results of the violating actions. This report will be reviewed by the Team Coordinator, Training Officer and DFRS Specialty Teams Coordinator for possible disciplinary action.

2.3.7 Guideline Violation by Public Safety Divers: Failure to comply with the requirement set forth in this document may result in the restriction or revocation of Public Safety Diver status or other disciplinary action as deemed appropriate by the Team Coordinator and the DFRS Specialty Teams Coordinator.

2.4 Record Keeping Requirements

2.4.1 Daily Activity Report: A daily activity report will be completed by the Shift Officer at the completion of each scheduled drill date and forwarded to the Team Coordinator.

2.4.2 Dive Tracker Form: A dive tracker form will be completed for each diver incurring bottom time. the Diving Supervisor is responsible for the completion of this report, but may elect to delegate this task to another individual. When completed all dive tracker forms should be interoffice mailed to the Team Coordinator for quarterly bottom time documentation.

2.4.3 Personal Diving Log: Each diver shall log every dive made under the auspices of the Underwater Rescue Team Public Safety Diving program and is encouraged to log all other dives. The diving log shall include at least the following:

a) Name of diver, partner and/or diver in charge;

b) Date, time, incident # and location of dive;

c) Diving modes used;

d) General nature of diving activities;

e) Underwater and surface conditions;

f) Results of diving tables or diving computer used;

g) Details of any accidents or potentially dangerous occurrences.

2.4.4 Notification of Occupational Medical Section: If pressure related injuries are suspected in a Underwater Rescue Team diver. the following information shall be recorded and retained by the Team Coordinator for a period of five (5) years with a copy forwarded to the Montgomery County Government, Occupational Medical Section, immediately following the occurrence. the Team Coordinator and the DFRS Injury Investigation Team will conduct an investigation in an attempt to determine the causation. The following information should be provided: description of symptoms including severity and time of onset; description and results of treatment.

2.4.5 Record Maintenance: The Team Coordinator shall maintain permanent records for each individual diving under the auspices of the Underwater Rescue Team. This file will include: evidence of certification, documented hours and types of training, disciplinary action and any other pertinent information as deemed necessary.

2.4.5.1 Availability of records:

2.4.5.1.1 Medical records will be maintained by the Occupational Medical Section and are available for review as per Montgomery County Government Administration procedure 4-8.

2.4.5.1.2 Records of diving and equipment inspection/testing shall be retained by the Team Coordinator for five (5) years.

2.4.5.1.3 The Training Officer shall maintain training records for each member indicating date, subjects covered, satisfactory completion and any certifications achieved.

2.4.5.2 Should the Department of Fire and Rescue Services decide to deactivate their Underwater Rescue Team, a summary of organizational diving activity for the previous five years shall be forwarded to the DFRS Specialty Teams Coordinator.

2.4.6 Required Accident Reporting: All injuries to team personnel are to be managed as directed by DFRS policies 525 and 801. In addition, all serious injuries shall be immediately reported to the Team Coordinator. Additional information deemed necessary by the Team Coordinator may be required. In addition, the Underwater Rescue Team must meet the following reporting requirements:

2.4.6.1 The Underwater Rescue Team shall record and report occupational injuries and illness in accordance with requirements of the appropriate local labor code section;

2.4.6.2 The Occupational Medical Section shall record the occurrence of any injury or illness requiring hospitalization of more than 24 hours; after any episode of unconsciousness; or after treatment in a hyperbaric chamber. This record shall specify the circumstances of the incident, extent of injury/illness and the final outcome of the diver's health;

2.4.6.3 A copy of all accident reports shall be forwarded to he DFRS Safety Officer. These documents will be used to evaluate risk management procedures and correct deficiencies in these guidelines.

2.4.7 Diving Accident Investigation: In the event of a serious injury or death during a diving operation DFRS policies 525, 801 and 812 will be followed. The injured diver and the safety diver's gear will be impounded and placed in sealable evidence containers. The gear must not be touched except by the Safety Officer to remove it from the diver, to close the valves on both the primary and reserve breathing gas supply cylinders and to place it in the evidence containers. The Safety Officer will ensure that all regulators, gauges and other related equipment are photographed prior to sealing it in the evidence containers. Gauge pressures, depth, dive table status and bottom time shall be recorded as soon as possible.

The DFRS Injury Investigation Team will be utilized as the lead investigator. In addition the following consultation agencies are available for use.

Divers Alert Network	1-919-684-8111
Dive Rescue International Inc.	1-800-248-3483
IADRS	1-800-423-7791
Lifeguard Systems Inc.	1-914-331-3383
Reimers Engineering	703-922-0606

SECTION 3 -- ENTRY REQUIREMENTS

3 Entry Requirements

3.1 Application / Evaluation

3.1.1 Written Application: DFRS applicants must submit an application letter via the chain of command as stated in DFRS Policy 1001. Corporation applicants must submit an application letter from their corporation Chief to the DFRS Specialty Teams Coordinator. All applicants must possess at least a valid Open Water SCUBA certification.

3.1.2 Medical Evaluation: The applicant must be cleared for team membership by the Occupational Medical Section as designated in Section 7.

3.1.3 Swimming Evaluation: The applicant must successfully complete the following evolutions in the presence of the Training Officer or Team Coordinator:

- Swim underwater, without swimming aids, for a distance of 75 feet without surfacing;
- Swim 1000 feet nonstop without swim aids;
- Swim underwater, without swim aids, for a distance of 150 feet, surfacing no more than 4 times and taking only a single breath each time;
- Without the use of swim aids, tread water for ten minutes the last two minutes without the use of hands.

3.1.4 Physical Fitness Testing: The applicant must successfully complete the following evolutions in the presence of the Shift Officer, Training Officer or Team Coordinator:

- 35 sit-ups in 90 seconds;
- 25 push-ups;
- three pull-ups;
- A grip strength of 100 lbs. in each hand;
- A positive result of the sit and reach (extending fingertips beyond toes while in a seated position with legs extended);
- 1.5 mile run in under 12 minutes.

3.1.5 EMT Certification: All applicants must possess a valid Maryland EMT certification and a current CPR certification.

3.1.6 SCUBA Certification: All applicants must possess a valid Open Water SCUBA certification. This certification class must have included a minimum of thirty (30) hours of training and five open water dives.

3.2 Probationary Public Safety Diver Level

This level signifies that the trainee has successfully completed the entry requirements listed in Sections 3.0 to 3.1.6.

3.2.1 Probationary Period: Each new team member who has met the entry requirements will be placed on a one-year probationary period. During this time, the member must complete Public Safety Diver Training Requirements listed in Section 4.1.3. At the end of the probationary period based on the satisfactory/unsatisfactory ratings on that individual's Probationary Public Safety Diver check-off form and information provided by that individual's Shift Officer, the Training Officer and various Diving Supervisors. The Team Coordinator and the DFRS Specialty Teams Coordinator will evaluate that person's performance and conduct. The three possible outcomes of this evaluation are:

- The individual has met all probationary requirements and is promoted to a Public Safety Diver;
- The individual has performed sub-standard and his/her probation will be extended for six months. After the six additional months of probation, the individual will either be promoted or dropped from the team;
- The individual has not met the probationary requirements and has performed in an unacceptable manner. This individual will be dropped from the team and cannot re-apply for at least six months.

3.2.2 SCUBA Examinations: Probationary Public Safety Diver must pass a written and practical skill evaluation administered by the Training Officer. Both examinations must be completed prior to participating in other diving activities.

3.2.2.1 Practical Examination: The following skills must be demonstrated to the Training Officer in a swimming pool or confined water:

a) Assemble and don dive gear;

b) Front roll entry from pool deck;

c) Interpret hand/line signals;

d) Face mask clearing in pool;

e) Don and doff BCD underwater;

f) Emergency ascent from 15 feet on alternate air source;

g) Establish and maintain neutral buoyancy;

h) Navigate a basic compass course;

i) Keep line taut while running an arc search pattern;

j) Set up and use hard wire communications.

3.2.2.2 Written Examination: Before participating in additional diving activities the probationary member must score at least 75% on the written open-water exam provided by the Training Officer. This exam will test the trainee's knowledge of at least the following:

a) Functions, use, care and maintenance of diving equipment;

b) Physics and physiology of diving;

c) Emergency procedures including emergency ascents;

d) Currently accepted no-decompression, repetitive decompression and decompression procedures including the use of dive computers;

e) Underwater signs and signals;

f) Aspects of fresh water and altitude diving;

g) Hazards of breath hold dives and ascents;

h) Planning and supervision of diving operations;

i) Diving hazards;

j) Prevention, causes, signs/symptoms, and field treatment for: near drowning, , motion sickness, hypo/hyper-thermia, decompression sickness, exhaustion, panic and hypoxia, asphyxiation, cerebral arterial gas embolism, decompression sickness, dehydration, drowning, entanglement, miscellaneous soft tissue injuries, non-pulmonary barotrauma, pulmonary barotrauma, and toxic gas inhalation.

Montgomery County URT
Entry Requirements Check-off Sheets

The following tasks must be successfully completed for interested persons to participate in any Underwater Rescue Team function. See URT Guideline Section 3.

Candidates Name: _____

TASK	Satisfactory	Unsat
1) Written application with written agency approval		
2) Possession of Open Water SCUBA certification		
3) Current CPR certification		
4) Current EMT certification		
5) Successful completion of OMS medical evaluation		
6) Physical Fitness Evaluation Task 1 – 35 sit ups in 90 secs		
7) Physical Fitness Evaluation Task 2 – 25 push ups		
8) Physical Fitness Evaluation Task 3 – 3 pull ups		
9) Physical Fitness Eval Task 4 – grip strength 100# ea. hand		
10) Physical Fitness Eval Task 5 – positive result sit & reach		
11) Physical Fitness Eval Task 6 – 1.5 mile run in 12 min		
12) Swimming Evaluation Task 1 – 75' underwater swim		
13) Swimming Eval Task 2 – 1000' non-stop surface swim		
14) Swimming Eval Task 3 – 150' u/w swim; 4 breaths max		
15) Swimming Evaluation Task 4 – tread water for 8+2 min		

Evaluator's Name: _____ Date: _____

Evaluators will attach a memorandum with detailed explanation on any tasks which scored unsuccessful.

Candidates successfully completing these entry requirements will be placed on a 12-month probationary period.

Montgomery County URT
Probationary Public Safety Diver Check-off Sheets

The following tasks must be successfully completed, within 12 months, for a Probationary Public Safety Diver to have the probation removed. Completion of probation will place the individual in a Public Safety Diver Status. See URT Guideline Section 4.

Candidates Name: _____

TASK	Satisfactory	Unsat
1) Completion of entry requirements		
2) Written SCUBA examination (Must score 75% correct)		
3) SCUBA skills examination Task 1 – Assemble & don dive gear		
4) SCUBA skills examination Task 2 – Front roll entry		
5) SCUBA skills examination Task 3 – Interpret line/hand signals		
6) SCUBA skills examination Task 4 – Clear face mask		
7) SCUBA skills examination Task 5 – Doff & don BCD underwater		
8) SCUBA skills examination Task 6 – 15' emergency ascent		
9) SCUBA skills examination Task 7 – Establish neutral buoyancy		
10) SCUBA skills examination Task 8 – Navigate a basic compass course		
11) SCUBA skills examination Task 9 – Arc search pattern		
12) SCUBA skills examination Task 10 – Setup and use u/w communications		
13) Attend 72 hours of team training in 12 months		
14) Logged 20 minutes bottom time each 3 months past year		
15) Completed mandatory 2 day Ice rescue/diving training		
16) Completed mandatory 1 day dry suit/full face mask/regulator training		
17) Completed mandatory 1 day Dive Rescue training		
18) Completed mandatory Swift Water training		
19) Logged 10 open water URT dives		
20) Completion of Dive Rescue I or Rapid Deployment Search & Rescue Class		

Evaluator's Name: _____ Date: _____

Evaluators will attach a memorandum with detailed explanation on any tasks which scored unsuccessful. Candidates successfully completing these probationary requirements will be upgraded to the level of Public Safety Diver.

SECTION 4 -- PUBLIC SAFETY DIVER REQUIREMENTS

4 Public Safety Diver Requirements

4.1 **General Policy and Prerequisites:** The following are considered minimal standards for the Public Safety Diver level.

4.1.1 Eligibility: Only a person diving under the auspices of the Underwater Rescue Team who has successfully completed the probationary requirements shall be eligible for the Public Safety Diver level. When the goals of probation have been met, the individual will request a promotion to the Public Safety Diver level by written notification to the Team Coordinator. The Team Coordinator will review the request with the Training Officer and make recommendations to the DFRS Specialty Teams Coordinator.

4.1.2 Requirements for Public Safety Diver Level: Submission of documents and participation in the required examinations does not automatically result in the removal of probationary status. The Probationary Public Safety Diver must convince the Training Officer and the Team Coordinator that he/she is sufficiently skilled and proficient to be promoted. This skill will be acknowledged through skills evaluation performed for the Training Officer.

4.1.3 Required Training: All personnel must complete theoretical and practical training during scheduled drills for a minimum cumulative time of seventy-two (72) hours per year. This equates to one six-hour drill for the twelve months during the year.

4.1.3.1 Theoretical aspects combined with appropriate practical training should include but not be limited to topics such as underwater crime scene investigation, evidence collection, small boat operations, limited visibility diving, diving medicine, light salvage and recovery, dry suit use, search techniques, dive planning, accident prevention and management, proper use of equipment, coordination with other agencies and appropriate government regulations.

4.1.3.2 It shall be mandatory for all personnel to attend the following proficiency maintenance training sessions at least once every calendar year:

a) Ice Rescue/Ice Diving	2 days
b) Dry Suit/Full face regulator use	1 day
c) Open water dive rescue	1 day
d) Swift Water Rescue	1 day

4.1.3.3 Each mandatory training session will be held at least twice in a calendar year. A minimum thirty (30) days written notice will be sent to all personnel listing the dates and times of the classes being offered. Personnel must notify the Training Officer if they will be unable to attend. Personnel not meeting minimum mandatory training requirements will be subject to progressive discipline.

4.1.3.4 After attending a mandatory training session, the instructor will advise all participants if they have met the minimum standard of proficiency. Those personnel who are in need of improvement will not be authorized to participate in that specific area until minimum proficiency has been met.

4.1.3.5 All personnel must successfully complete a DIVE RESCUE I, RAPID DEPLOYMENT SEARCH AND RESCUE or other approved course.

4.1.3.6 All personnel must log a minimum of twenty (20) minutes of bottom time on SCUBA during scheduled training sessions in open water every three months. The months shall be clustered as follows; January/February/March, April/May/June, July/August/September and October/November/December. All personnel are required to submit to the Training Officer via their Shift Officer, a written record of bottom time after each three-month period. This written record shall state the location, date, bottom time and name of diving supervisor for each dive.

4.1.3.7 If an individual's competence in any area becomes hazardous to self or others, the Team Coordinator will be immediately notified. The Team Coordinator will investigate the allegations, direct the Training Officer to evaluate the individual's performance and administer remedial training if necessary.

4.1.4 Annual Medical Examination: All personnel shall pass an annual medical examination, as stated in Section 7.0, performed by the Occupational Medical Section. After each major illness or injury, personnel shall submit to a medical interview/examination before resuming diving activities.

4.1.5 Revocation of Public Safety Diver Level: The Public Safety Diver level may be revoked or restricted for cause by the Team Coordinator as a measure of progressive discipline. Violation of these diving guidelines or other applicable policies may be considered cause for revocation.

SECTION 5 -- DIVING EQUIPMENT

5 General Policy:

All equipment shall meet standards as determined by the Maintenance Officer and approved by the Team Coordinator. Only those makes and models of equipment specifically approved by the Team Coordinator shall be used by personnel with appropriate training. All equipment should be standardized and compatible.

All equipment carried on the team vehicle shall be inspected at least monthly and within twenty-four (24) hours after any use. Inventory records shall be maintained by the Maintenance Officer. Including repairs made by other personnel for the equipment being carried on the team vehicle.

All inspections, tests and maintenance must be accomplished by a technician or facility approved by the Team Coordinator via the Maintenance Officer. Equipment that is subject to excessive usage under adverse conditions should receive more frequent testing and maintenance than is required for sport scuba diving equipment use.

5.1 Record Keeping: Each equipment modification, repair, test, calibration or maintenance shall be logged including the date and nature of work performed, serial number of item and the name of the person performing the work. Examples of equipment to be recorded are: Air filtration systems, air storage cylinders, analytical instruments, compressors, cylinder valves, depth gauges, dive computers, gas control panels, regulators, scuba cylinders, breathing masks and submersible pressure gauges.

5.2 Breathing Masks and Regulators: Breathing masks shall have a non-return valve at the attachment point between the mask hose that shall close readily and positively, and exhaust valve and a minimum ventilation rate capable of maintaining a diver at 150 feet of depth. Scuba regulators shall be inspected prior to the first use and annually thereafter.

5.3 SCUBA Cylinders: Scuba cylinders shall be hydrostaticaly tested at least every five (5) years. A visual cylinder inspection (VCI/VIP) shall be conducted at intervals not to exceed twelve (12) months. Cylinder valves shall be functionally tested and inspected at intervals not to exceed twelve (12) months.

5.4 Auxiliary Equipment:

5.4.1 All auxiliary equipment shall be of a type determined by the Team Coordinator.

5.4.2 Backpacks and weight systems shall be examined prior to each use.

5.4.3 Gauges shall be inspected, tested and calibrated prior to their first use and every twelve (12) months thereafter. Personnel should be aware of the calibration curve of all gauges.

5.4.4 All weight systems and backpacks must be equipped with quick release devices designed to permit jettisoning the entire gear. The quick release device must operate easily with a single motion from either hand.

5.4.5 Buoyancy compensators, dry suits and any other variable volume buoyancy compensation devices shall be equipped with an exhaust valve. Buoyancy compensation devices should have a reliable rapid exhaust valve that can be operated in a horizontal swimming position. These devices as well as any associated auto inflation devices shall be functionally inspected prior to their first use and every six months thereafter. Dry suits should have a hands free exhaust valve.

5.4.6 Hand held underwater power tools and equipment shall be specifically approved for this purpose. Electrical tools and equipment supplied with power from the surface shall be de-energized before being placed into or retrieved from the water. Hand held power tools and equipment shall not be supplied with power until requested by the tool operator.

5.4.7 Nationally recognized decompression, repetitive dive and no decompression tables shall be on site for all diving operations.

SECTION 6 -- BREATHING AIR

6 Breathing Air

6.1 Minimal Standards: Breathing air for all diving activities shall meet the following specifications:

a) Minimum oxygen – atmospheric (20% – 22%);
b) Oxygen content -- Nitrinox and other special mixtures must be specified upon the advice of a competent authority and approved by the Team Coordinator. All team personnel on a dive in which special mixtures are used shall be appropriately trained;
c) Maximum Carbon Monoxide -- 0.001% (10 ppm);
d) Maximum Carbon Dioxide -- 0.1% (1000 ppm);
e) Dust, oil and water -- absent;
f) Odors and vapors -- absent.

6.2 Compressor Systems:

6.2.1 Design and location of system:
6.2.1.1 Low pressure compressors used to supply air to the diver shall be equipped with a volume tank using a check valve on the inlet side, a pressure gauge, a relief valve and a drain valve;
6.2.1.2 Compressed air systems over 500 psig shall have a slow opening shut off valves;
6.2.1.3 All air compressor intakes shall be located away from areas containing exhaust or other contaminants.
6.2.2 Compressor operation and air test records:
6.2.2.1 Gas analyses and air tests shall be performed at regular intervals of no more than 100 hours of operation or six months, whichever occurs first. The results of these tests shall be entered in a formal log maintained by the Maintenance Officer.
6.2.2.2 The Maintenance Officer shall keep a log showing operation, repair, overhaul, temperature cut out, maintenance and filter maintenance for each compressor.
6.2.3 Oxygen Safety:
6.2.3.1 Equipment used with oxygen mixtures containing over forty percent (40%) by volume oxygen shall be designed and maintained for oxygen service;
6.2.3.2 Components exposed to oxygen containing over forty percent (40%) oxygen by volume shall be cleaned of flammable materials before being placed into service;
6.2.3.3 Oxygen systems over 125 psig shall have slow opening shut off valves.

SECTION 7 -- MEDICAL STANDARDS

7 Medical Requirements

7.1 General Policy:

7.1.1 The Underwater Rescue Team shall ensure that all personnel have passed a current diving physical examination. These examinations shall be performed by the Occupational Medical Section.

7.1.2 Personnel should be free of any chronic disabling disease or conditions as listed in Section 7.4.

7.2 Frequency of Medical Examinations: Medical examinations will be completed when:

7.2.1 Individuals are applying for team membership and prior to diving under the auspices of the Underwater Rescue Team;

7.2.2 At one year intervals from the previous examination;

7.2.3 After each major injury, illness or surgery;

7.2.4 After any episode of unconsciousness;

7.2.5 After any hyperbaric related injury.

7.3 Content of Medical Examinations: With the exception of back to work evaluations medical examinations should consist of the following:

7.3.1 Medical history as requested by the Occupational Medical Section;

7.3.2 Physical Examination as determined by the Occupational Medical Section;

7.3.3 Pertinent laboratory testing including, but not limited to, chest x-ray, visual acuity, color blindness, stress test, complete blood count, complete urinalysis and pulmonary function test.

7.3.3.1 Personnel must have a vital capacity of eighty percent (80%) of predicted normal as measured by spirometer, including a physician's report on gross flow rates during their pulmonary function test.

7.3.4 The following preventative immunizations should be made available to all personnel:

a) Tetanus-Diphtheria: every ten years

b) Hepatitis: initially and periodic reevaluations for booster necessity

c) Polio: initial only

d) Tuberculosis: annual testing

7.4 Contraindications to SCUBA Diving: The Occupational Medical Section should screen for the following contraindications to scuba diving.

1) Tympanic membrane perforation or aeration tubes;
2) Inability to auto inflate the middle ear;
3) External ear exostoses or osteomas adequate to prevent external ear canal pressure equalization;
4) Meniere's Disease or other chronic vertiginous conditions, status post surgery such as subarachnoid endolymphatic shunt for Meniere's Disease;
5) Stapedectomy and middle ear prosthesis;
6) Chronic mastiditis or mastoid fistula;
7) Oral or maxillofacial deformity that interferes with retention of a regulator mouthpiece;
8) Corrected visual acuity not adequate to see underwater measurement devices. Uncorrected visual acuity not adequate to identify/recognize objects at a distance of ten feet;
9) Radial keratotomy or other recent ocular surgery;
10) Claustrophobia;
11) Suicidal ideation or tendencies;
12) Psychosis;
13) Significant anxiety states;
14) Severe depression;
15) Manic states;
16) Alcoholism;
17) Mood altering drug use;
18) Improper motivation for diving;
19) Episodic loss of consciousness;
20) History of seizure;
21) Migraine;
22) History of CVA or TIA;
23) History of spinal cord trauma with neurological deficit;
24) Demyelinating process;
25) Brain tumor with or without surgery;
26) Intracrainial aneurysm or other vascular malformation;
27) History of neurological DCS with residual deficit;

28) Head injury with sequelae;

29) History of intracrainial surgery;

30) Sickle cell disease;

31) Polycythemia or leukemia;

32) Unexplained anemia;

33) History of AMI;

34) Angina or other evidence of coronary artery disease;

35) Unrepaired cardiac septal defects;

36) Aortic or mitral stenosis;

37) Complete heart block;

38) Fixed second degree heart block;

39) Exercise induced tachyarrhythmias;

40) WPW syndrome with PAT or syncope;

41) Fixed rate pacemakers;

42) Any drugs which inhibit the normal cardiovascular response to exercise;

43) Peripheral vascular disease, arterial or venous, adequate to limit exercise tolerance;

44) Hypertension with end organ finding: retinal, cardiac, renal or vascular;

45) History of spontaneous pneumothorax;

46) Bronchial asthma or exercise/cold induced asthma;

47) COPD;

48) X-ray evidence of pulmonary blebs, bullae or cysts;

49) Insulin dependent diabetes;

50) Diet or oral controlled diabetes if there is a history of hypoglycemic episodes;

51) Any abdominal wall hernia with potential for gas trapping until surgically corrected;

52) Periesophageal or incarcerated sliding hiatal hernia;

53) Sliding hiatal hernia if symptomatic due to reflux esophagitis;

54) Pregnancy;

55) Osteonecrosis or a history consistent with a high risk of dysbaric necrosis;

56) Any condition requiring the ingestion of the following medications: antihistamines, bronchodilators, steroids, barbiturates, phenytoin, mood altering drugs or insulin.

SECTION 8 -- SAFETY REQUIREMENTS

8 The following is a list of requirements designed to decrease morbidity and mortality in the ranks of the Underwater Rescue Team. As stated in Section 2.3.6, personnel may deviate from these Public Safety Diving Guidelines to the extent necessary to prevent or minimize a situation that is likely to cause death, serious physical harm or major environmental damage.

8.1 No diver shall enter the water until the standby diver, standby tender and a 90% diver are in position. The standby diver must be able to render immediate assistance;

8.2 No diver shall enter the water until a briefing as stated in Sections 2.31, 2.32 and 2.33 have been completed;

8.3 Personnel should not dive for more than twenty (20) minutes per dive. At least a twenty (20) minute surface interval should separate every dive, or as required by diving tables;

8.4 All personnel with the exception of the diver equipped with a buoyancy compensation device or donning/doffing a dive ensemble, shall wear a USCG approved Type III or Type IV personal flotation device;

8.5 Maximum diving depth will be 75 feet;

8.6 No diver will initiate a dive with less than 2800 psi primary breathing gas cylinder pressure. Cylinders containing less than 2800 psi are considered empty. All personnel must surface with no less than 1000 psi primary breathing gas cylinder pressure;

8.7 All divers must use a redundant reserve breathing gas supply and a reserve mask, if using full face regulator;

8.8 Tanks equipped with “J” valves will not be used;

8.9 Divers should be equipped with the following: Buoyancy Compensation Device (BCD) with power and manual inflator, 2 knives, trauma shears, full face regulator, primary breathing gas cylinder, reserve breathing gas cylinder, fins, quick release weight system, dry suit with automatic and manual pressure relief valve, chest harness, snap shackle/carabiner, gloves, recording depth gauge, Submersible pressure gauge (SPG), whistle and watch/bottom timer.

8.10 Each line tender should be equipped with the following: Personal Flotation Device (PFD), dive tracker form, writing instrument, watch, compass and hard wire communications search line;

8.11 Line tenders and standby divers will not be assigned any other tasks or be distracted away from their responsibilities;

8.12 Personnel have the right to refuse to dive at any time during the incident, for safety or personal health reasons, without fear of harassment;

8.13 An ear wash solution will be on site and available for use, to prevent ear infections;

8.14 No diver will be permitted to violate the no decompression limits of the nationally recognized diving tables being used for that dive;

8.15 No diving operations will be conducted when the Diving Supervisor does not have immediate access to a MCFR radio, cellular telephone or land line telephone;

8.16 Upon surfacing all divers will give the "OK" signal, unless they are in distress and in need of assistance;

8.17 At all diving operations a first aid kit, oxygen kit and water cooler will be on site. The inventories will be the same as for a MCFR ambulance;

8.18 Multi-day diving and repetitive dives should not be performed by individual divers;

8.19 During non-rescue diving an ascent rate of no more than thirty (30) feet per minute (fpm) will be used;

8.20 Upon the recognition/notification of a potentially serious problem with his/her diving equipment the diver will immediately exit the water for gear repair or replacement;

8.21 During night dives, divers should be equipped with two functioning underwater lights and two cyalume glow sticks. The glow sticks should be activated and attached to the diver's gear for the best all around visibility;

8.22 On all dive the diver should be rinsed down prior to doffing his/her gear;

8.23 When possible a staffed boat should be in the water to assist a diver in distress;

8.24 An inflatable exposure suit by itself shall not be used as a sole source of buoyancy;

8.25 All divers not operating in a rescue mode will execute a safety stop at ten (10) feet for three minutes;

8.26 All personnel arriving at the scene of an incident will personally hand over their URT PASS Tag to the Diving Supervisor. The Diving Supervisor/Safety Officer will maintain all PASS tags on the URT vehicle PASS tag collector ring;

8.27 Personnel will not be permitted to dive in any water that is contaminated with a dangerous or hazardous substance. Personnel thought to be exposed to such substances will be decontaminated by the Hazardous Incident Response Team (HIRT) if necessary. These personnel should be placed in an established hot zone and provided with alternate air sources as necessary;

8.28 A dive will be terminated when a diver requests termination, when twenty minute time limit expires, when the diver's primary breathing gas supply cylinder reaches 1250 psi or when any unsafe conditions are observed;

8.29 The standby diver will be deployed when the primary diver fails to respond correctly to communications or line signals, communications are lost and cannot be quickly reestablished or when the primary diver communicates that he/she needs assistance.

SECTION 9 -- OPERATIONAL PROCEDURES

9 Operational Procedures

9.1 **Diving Supervisor:** The first arriving non-probationary Underwater Rescue Team member shall assume command of the diving operation. Certain tasks, such as gathering and documenting the facts from the Incident Commander, interviewing witnesses, establishing a last seen point, determining the number of victims, deciding the mode of operation and determining if additional resources are needed should be immediately addressed. The initial Diving Supervisor will not automatically be relieved of command upon the arrival of a Diving Supervisor. Command must be transferred as stated in the Incident Command System, Executive Regulation 64-89.

9.2 **Advanced Life Support:** When operating in the rescue mode an Advanced Life Support (ALS) equipped and staffed unit will be responding to or on the scene prior to commencing diving operations. On difficult recovery operations, this will be left to the discretion of the Diving Supervisor.

9.3 **Diving Team Assignments and Responsibilities:** The following is a list of diving team assignments and their associated duties. A standard diving team should contain a minimum of six personnel; three divers, two line tenders and a Diving Supervisor. This can be increased by adding several beneficial positions. The responsibilities of the Diving Supervisor and Safety Officer have already been described in Sections 1.7.6 and 1.7.7, and are only briefly mentioned below.

9.3.1 The **Primary Diver** is responsible for the initial search and recovery effort. In the rescue mode, this should be a very experienced diver.

9.3.2 The **Primary and Standby Line Tenders** are responsible for assisting the divers in donning gear, checking the function of the diver's gear and recording the diver's primary and reserve breathing gas supply pressures. They should also test the function of the hard wire communication system, review line signals and emergency procedures and perform a final overview of the divers ensemble. The line tender should also assist the diver in and out of the water.

Once the diver has begun the underwater search the line tender will guide and record the diver's search pattern. It is the line tenders responsibility to monitor the diver's depth, bottom time, gauge pressures, air consumption rate, area searched and the amount of search line the diver has out. The line tender will immediately notify the Diving Supervisor of any potentially hazardous situations.

9.3.3 The **Standby Diver** will maintain a constant awareness of the number and identity of personnel underwater, their location, function

and time of entry. The standby diver will remain in radio, visual, voice or searchline communications with his/her line tender and the Diving Supervisor. The standby diver will be prepared to render immediate assistance as dispatched by the Diving Supervisor. The standby diver should be equipped with several cutting devices including a knife, trauma shears, wire cutters, contingency line and a complete redundant breathing gas supply system for the diver in need of assistance. The standby diver should be the most experienced diver available.

9.3.4 The **90% Diver** is a backup standby diver. This individual is 90% dressed and can enter the water after rapidly dressing the final 10%. This individual adds a significant safety factor into the diving operation.

9.3.5 The **Diving Supervisor** is the operational leader on an operation. He/she has the final go/no go authority. See Section 1.7.6.

9.3.6 The **Safety Officer** shall coordinate the overall safety of team personnel on an operation. See Section 1.7.7.

9.3.7 The **Time Keeper** is responsible for recording all aspects of the operation, as directed by the Diving Supervisor.

9.3.8 The **Staging Officer** will keep replacement equipment and supplies ready, repair equipment (as qualified) and secure any physical evidence recovered during the operation.

9.4 Loss of Search Line: A diver that becomes disconnected from his/her search line should quickly attempt to locate the search line. If that is unsuccessful, the diver must immediately begin a safe ascent to the surface.

Personnel who become disconnected from their search line during an ice diving operation are in a true emergency situation. The disconnected diver should quickly attempt to locate the search line. If that is unsuccessful, the diver must immediately begin a safe ascent to the surface. The diver must remain calm, breathe normal and not attempt to find the entrance hole. Upon reaching the surface ice, the diver should extend his/her body vertically, maximizing his/her length. The dispatched standby diver will make a large circular pattern at the surface ice. The length will be approximately twice that of the primary diver's search line. The standby diver or his/her search line should contact the primary diver. The primary diver should secure him/herself to that search line and signal (three tugs) both the standby diver and the line tender to surface.

9.5 Diving Signals: The following line signals or rope tugs are to be used on all diving operations.

- Line Tender to Diver:
  - 1 pull -- Are you OK? / Face the line / Stop
  - 2 pulls --
  - 3 pulls -- Go to diver's right
  - 4 pulls -- Go to diver's left
  - 2 + 2 -- Search immediate area
  - 3 + 3 -- Standby to come up
  - 4 + 4 – Come up
- Diver to Line Tender:
  - 1 pull -- I am OK / Tender make notation
  - 2 pulls -- Give me more line.
  - 2 + 2 pulls – Tangled but ok, alert standby diver
  - 3 + 3 pulls – Ok but need help from standby diver
  - 4 + 4 pulls -- I am in trouble and need immediate help
  - 6 + 6 pulls -- I have found what we are looking for. When ice diving -- slowly pull me in.

The following hand signals will be used for communication between the primary diver and the standby diver in an entanglement situation.

- Entangled Diver to Standby Diver:
  - Tapping on own mouthpiece -- I am already on my pony cylinder.
  - Making large circle with own hand -- I am entangled, followed by pointing to area of entanglement.
  - Tapping own chest -- I am injured, followed by pointing to area of injury.
- Standby Diver to Entangled Diver:
  - Tapping entangled diver's chest -- I am leaving you to get more air.

9.6 Evidence Recovery

9.6.1 Evidence Containment: All evidence should be secured and contained prior to bringing it to the surface. Cadavers should be bagged underwater and secured via surface buoy or another rope.

9.6.2 Evidence Measurement: When possible all evidence should be measured from; surface above the object to the object, distance from shore to surface above the object and distance from the shoreline directly to the object. This triangulation will provide an accurate measurement.

9.6.3 Evidence Photography: When possible all evidence should be photographed prior to surfacing the evidence. If this is not possible, the surface photography of evidence will be left to the discretion of a law enforcement officer or the Diving Supervisor in his/her absence.

9.6.4 Chain of Custody: Only the diver recovering the evidence and the Staging Officer/Diving Supervisor will handle the evidence. The evidence and its container will be hand delivered to the appropriate on scene law enforcement officer.

9.7 ECC Dispatch

The units to be dispatched, types of incidents to be dispatched on and the minimum team staffing for ECC dispatches will be determined by the Team Coordinator and DFRS Specialty Teams Coordinator. All personnel must follow DFRS Policy 1001 or the appropriate corporation guideline. The following three level dispatch/response procedure will be utilized.

- Level I -- This is a notification for the on duty Underwater Rescue Team Shift Officer to contact the ECC Supervisor. This procedure will be utilized for routine diving operations. This will allow the Shift Officer to receive the authority to proceed from the DFRS Shift Chief and to assemble that shifts personnel;
- Level II -- This is an emergency incident requesting the response of all on duty team personnel;
- Level III -- This is an emergency incident requesting the response of all team personnel. This will only be utilized on extremely large or extended incidents or those of a multiple victim nature. This must be authorized by the DFRS Shift Chief.

For informational purposes dispatch criteria below information is from the Communications Manual 1995 edition Section 12.

12.2 Underwater Rescue Team (URT): The URT was established in 1981 to assist the local corporations in handling incidents involving underwater rescue and recovery. The team is located at Station 29 and is composed of volunteer and career fire and rescue personnel who are qualified divers.

12.2.1 Response Criteria. The URT is dispatched as part of the initial response assignment for:

- *Incidents involving a vehicle or aircraft submerged in a body of water;*
- *Incidents where the victim may be submerged and beyond the reach of conventional rescue techniques;*
- *Incidents in all other water, including the C&O Canal and the Potomac River north of Seneca;*
- *Ice rescues inland, and all other waters, including the C&O Canal and the Potomac River north of Seneca;*
- *The Underwater Rescue Team can also be requested by the on-scene Incident Commander as needed.*

12.2.2 Alert Procedure. The Underwater Rescue Team is alerted by tone-activated personnel pagers. After the stations concerned are alerted and URT personnel pagers are activated, the first vocal announcement of the incident is broadcast. Before responding to the incident, URT members must notify the ECC by telephone, stating name, rank and ETA to the scene.

Once the minimum response requirement of four members with diving status is met, an announcement indicating the URT is responding is made. This is the signal for URT telephone messages into the ECC to cease. It also serves to inform on scene personnel that the Underwater Rescue Team is enroute. The on-scene operation of the URT will commence only at the request of the Incident Commander.

Note: Changes to the above section must be handled through ECC.

SECTION 10 -- MINIMUM QUALIFICATIONS

10 Minimum Qualifications for Officer Positions

10.1 Diving Supervisor -- : The position of Diving Supervisor is similar to a ranking structure. The qualifications for a Diving Supervisor are:

10.1.1 Served as an Underwater Rescue Team Public Safety Diver for a minimum of three years, not including probation;

10.1.2 Successful completion of sixty hours of diving rescue classes covering the following topics: search and recovery, ice rescue, ice diving, light salvage, underwater crime scene investigation, supervision of diving operations and swift water rescue;

10.1.3 Thirty logged Underwater Rescue Team open water dives;

10.1.4 Recommendation from the Team Coordinator.

10.2 Public Safety Diver: The following requirements must be completed prior to becoming a Public Safety Diver:

10.2.1 Completed probation as stated in Section 3.00 and 4.00;

10.2.2 Successful completion of DIVE RESCUE I; RAPID DEPLOYMENT SEARCH and RESCUE or other approved class;

10.2.3 Ten logged Underwater Rescue Team open water dives;

10.2.4 Recommendation of the Training Officer and the Team Coordinator.

10.3 Training Officer: The Training Officer must meet the following requirements:

10.3.1 Served as a Diving Supervisor for at least twelve months;

10.3.2 Successful completion of the MFRI ITC II course;

10.3.3 Scuba instructor certification is preferred but not required;

10.3.4 Recommendation of the Team Coordinator.

10.4 Maintenance Officer: This position has no direct impact on personnel and therefore may be filled with an individual of any rank with special skills in scuba repair and record keeping. Preferably, this individual would be a Public Safety Diver.

APPENDIX A

Definition of Terms

BCD	Buoyancy compensation device
Bottom Time	The total elapsed time, measured in minutes, from the time a diver leaves the surface until the diver leaves the bottom.
Buddy breathing	The sharing of a single air source between two divers
Buddy diver	The second member of a diving pair
Buoyant ascent	An ascent made using some form of positive buoyancy, such as without a weight belt or with the BCD inflated, is done more rapidly than a normal ascent
Controlled ascent	Includes normal swimming and buddy breathing ascents where the diver maintains control in such a manner that a pause or stop can be made during the ascent
DCS	Decompression Sickness
Dive	A descent into the water, an underwater diving activity using compressed gas, an ascent and a return to the surface
Dive location reserve breathing gas	A supply system of air at the dive location which is independent of the primary system and sufficient to support divers during any planned decompression dive
Emergency Ascent	An ascent made under anything other normal conditions.
Hyperbaric Conditions	Pressure conditions in excess of normal atmospheric pressure at the dive site.
Lead Diver	The responsible member of a buddy team or other operational group
No-Decompression Limits	The depth vs. time limits of the “no-decompression limits and repetitive dive group designations table for no-decompression air dives” of the U.S. Navy Diving Manual or equivalent limits
Normal Ascent	An ascent made with an adequate air supply at a rate of less than 30 fpm
Pressure Related Injury	Any injury resulting from pressure disequilibrium within the body as the result of hyperbaric exposure
Public Safety Diving	All diving performed by individuals necessary to and part of a police, fire or public safety activity in conjunction with any project under the jurisdiction of any public or private institution or similarly recognized organization, department or group

Qualified Person	An individual, by possession of a recognized degree, certificate, professional standing or skill, and who by knowledge, training and experience has demonstrated the ability to deal with problems related to the subject matter, the work or the project
SCUBA Diving	A diving type independent of surface supply in which the diver uses open circuit, self-contained underwater breathing apparatus
Standby Diver	A diver at the dive location capable of rendering immediate assistance to a diver in the water
90% Diver	A diver at the dive location who is 90% dressed. This individual would be capable of dressing the final 10% rapidly and entering the water as deemed necessary by the Diving Supervision

Appendix B

Rapid Field Neurological Examination

Test Times: _____/_____/_____

A) Mental Status	**Normal**	**Unsat**
1) Observe Behavior (note any deviations from normal behavior)	_____	_____
2) Orientation to situation Ask name, date, place, dive profile)	_____	_____
3) Long term memory Ask name of President or Birthday)	_____	_____
4) Short term memory Ask to recall 3 objects after 5 minutes)	_____	_____
5) Calculations (subtract 4's from 100)	_____	_____

B) Cranial Nerves	**Normal**	**Unsat**
1) Smell (test if possible)	_____	_____
2) Vision (blurry or tunnel vision)	_____	_____
3, 4, 6) Eye Movements (eyes follow finger / pupils react to light)	_____	_____
5) Sensory Face / Motor to Jaw (light touch to forehead, cheeks, chin/chewing)	_____	_____
8) Hearing (rub fingers next to ears)	_____	_____
9, 10) Gag reflex / Vocal Cords (say "Ahh" and observe throat)	_____	_____
11) Head turning / Shoulder Shrug	_____	_____
12) Tongue movement (sticks straight out)	_____	_____

C) Coordination	**Normal**	**Unsat**
1) Gait (walk heel to toe, tip toes, on heels)	_____	_____
2) Finger to nose / Heel shim	_____	_____
3) Rapid alternating movements (pattycakes)	_____	_____
4) Romberg test (stand still with arms out & eyes closed)	_____	_____

D) Motor (bilateral strength differences)

1) Upper extremities (Ask to recall 3 objects)	**Normal**	**Unsat**
• Deltoids / Latissimus	_____	_____
• Biceps / Triceps (pull arms / push arms)	_____	_____
• Forearms (resist fist movement)	_____	_____
• Hand grip / Finger Strength	_____	_____
2) Lower extremities (Quick Check)		
• Hip extension / Flexion	_____	_____
• Hip abduction / Adduction	_____	_____
• Knee extension / Flexion	_____	_____
• Ankle Flexion	_____	_____

E) Sensory (test pain sensation using pinwheel or safety pin; out line affected area with marker)

	Normal	**Unsat**
1) Test torso in straight lines (2 lines min. front & back)	_____	_____
2) Test limbs in circular patterns (above & below each joint min.)	_____	_____
3) Test hand / feet in circular pattern	_____	_____

F) Reflexes	**Normal**	**Unsat**
1) Biceps	_____	_____
2) Triceps	_____	_____
3) Knees	_____	_____
4) Ankles	_____	_____

Appendix C
Standard Operating Procedure for the Safety Sector

General Information: On all water rescue/recovery incidents at which the URT will be participating in a Safety Sector Officer shall be assigned by the Diving Supervisor.

Based upon the risks associated with the operation and the number and qualification of available personnel, the Diving Supervisor may elect to perform the Safety Officer duties.

The Safety Sector Officer shall have the responsibility to monitor operations including ice rescue, swift water rescue, surface rescue and SCUBA diving, and minimize the risks to personnel by intervening when unsafe actions are detected. The Safety Officer has the authority to prevent or stop unsafe acts and may only be overridden by the Diving Supervisor.

On swift water and surface ice rescue incidents, due to the need for rapid intervention, the URT safety sector officer will utilize a short check sheet. There is an obvious need for advanced knowledge of these two areas for the safety officer. The primary emphasis would be on proper flotation and environmental protection, and on the proper rescue sequence of reach, throw, row, go and helo.

1 URT Safety Officer Functions: The URT Safety Officer shall be responsible for the following:

1.1 Preventing and minimizing the risks associated with asphyxiation, cerebral arterial gas embolism, decompression sickness, dehydration, drowning, entanglement, miscellaneous soft tissue injuries, non-pulmonary barotrauma, pulmonary barotrauma and toxic gas inhalation;

1.2 Computing nationally recognized dive tables for each diver exposed to hyperbaric pressures;

1.3 Administering or delegating the administration of a post dive neurological assessment;

1.4 Assisting the Diving Supervisor in pre-dive planning at the pre-dive briefing;

1.5 In the event of an injury, coordinate EMS response, treatment and consultation with EMS. If the injury is suspected to be hyperbaric related, EMS personnel should be provided with written documentation of the injured diver's depth, down time, activity, initial complaints, neurological assessment findings, initial treatment and dive table status. The safety officer or the diver's line tender should accompany the injured diver if possible;

1.6 The monitoring of each diver's condition, respiratory rate, primary cylinder pressure and depth at five minute intervals.

Appendix C -- Standard Operating Procedure for the Safety Sector

1.1 Ensuring that no personnel cross the demarcation line without wearing a USGC approved PFD or fully dressed in diving gear;

1.2 On minor incidents, the maintenance of the personnel accountability system;

1.3 Continuously reevaluating the dive site and make recommendations;

1.4 Ensuring that a standby diver, standby tender and 90% diver are in position before the primary diver begins diving.

2 URT Safety Officer Resources

- ☒ Demarcation line checklist
- ☒ URT safety sector checklist
- ☒ Dive tables
- ☒ Dive tracker forms
- ☒ Repetitive dive worksheet
- ☒ Personnel flotation device
- ☒ Binoculars
- ☒ Stopwatch
- ☒ Notepad and pencil
- ☒ Portable radio

Appendix C -- Standard Operating Procedure for the Safety Sector

URT SAFETY SECTOR CHECKLIST

Type of Incident: ☒ Rescue ☒ Recovery

Object of Search: ☒ Body ☒ Vehicle ☒ Evidence

- ❑ Wearing ICS safety sector vest
- ❑ Demarcation line safety officer assigned: (name) _____
- ❑ Dive site safety officer assigned: (name) _____

Diving Supervisor's Name: _____

Incident Safety Officer Name: _____

Command Post Location: _____

WEATHER CONDITIONS:

Wind Direction: _____ Wind Speed: _____

Air Temperature: _____ Water temperature: _____

Relative Humidity: _____ Shaded Area Available: ☒ yes / ☒ no

Anticipated impact of weather conditions on personnel:

On diver's: _____

_____

On surface support personnel: _____

_____

Methods to minimize weather impact: _____

_____

Pre-Dive Briefing Notes:

Unusual hazards likely to affect personnel: _____

_____

☒ Post dive decontamination discussed

☒ Safety procedures and contingency plans discussed

☒ Line and hand signals reviewed

Modifications to diving or emergency procedures necessitated by this specific operation:

_____

_____

☒ Personnel encouraged to report dive illnesses and post dive abnormalities

☒ Personnel encouraged to pre-hydrate

Other pre-dive notes: _____

_____

_____

Dive Site Safety:

☒ Demarcation safety officer in position

☒ ALS unit on scene – Unit #: _____

☒ Dive site area secured by police – Agency and POC: _____

☒ Local marine traffic halted

☒ Dive site hydration station established

☒ Demarcation line hydration station established

☒ Dive site aid station established

☒ Witnessed primary diver's pre-dive safety check by tender

☒ Witnessed standby diver's pre-dive safety check by tender

☒ Witnessed 90% diver's pre-dive safety check by standby tender

☒ All primary cylinders have at least 2800 psi (pre-dive)

☒ If night diving do all diver's have multiple glow sticks?

Operation In Progress Notes (include time of each notification):

Notified Diving Supervisor of: _____

_____

_____

Notified Incident Safety Officer of: _____

_____

_____

Notified Incident Commander of: _____

_____

_____

☒ Evaluated each diver's status with tender at 5 minutes

☒ Evaluated each diver's status with tender at 10 minutes

☒ Evaluated each diver's status with tender at 15 minutes

☒ Evaluated each diver's status with tender at 20 minutes

☒ Each diver pulled at 20 minutes of bottom time

☒ Notes: _____

_____

Post Dive Safety:

☒ Each diver rinsed off prior to dressing down

☒ Received completed dive tracker for each diver

☒ Received completed dive table, with letter designation, for each diver

☒ Repetitive dive worksheet completed by tender prior to each diver passing demarcation line

☒ Received completed post dive neurological assessment for each diver

☒ Attended post dive debriefing

☒ Constructive comments to bring up at post dive debriefing: _____

_____

_____

_____

Demarcation Line Checklist

All personnel will fall under one of the three categories listed below. Any person wishing to cross the demarcation line must have permission from either the Incident Commander or the Diving Supervisor and shall have the minimum equipment listed for their category. If an individual does not meet these requirements they do not cross the line. No media personnel are permitted to cross the demarcation line. Utilize law enforcement to assist if required.

Non-Diving Support Personnel:

- ☒ Personal Flotation Device

Aid Station Personnel (2):

- ☒ Personal Flotation Device
- ☒ Oxygen Duffel – Cylinder pressure: _____
- ☒ Jump Kit / Trauma Kit
- ☒ Portable Radio
- ☒ Full Backboard
- ☒ Extrication Kit

Line Tenders:

- ☒ Personal Flotation Device
- ☒ Clipboard w/diver tracker forms
- ☒ Multiple writing utensils
- ☒ Watch or stop watch
- ☒ Compass
- ☒ Search line, attached to diver
- ☒ Contingency loop line: First diver only
- ☒ Cutting tools: hack saw, long handle pruning shears, bolt cutters; First diver only

Divers:

- ☒ Dry suit hood
- ☒ Sport mask

- ☒ Inverted neck seal
- ☒ Primary cylinder on: pressure _____
- ☒ Pony cylinder on: pressure _____
- ☒ AGA mask performance check
- ☒ Hard wire communications performance check; comms optional
- ☒ Pony sport regulator performance check
- ☒ Pony regulator in quick release holder
- ☒ Two knives
- ☒ Trauma shears
- ☒ Dry suit inflator performance check
- ☒ Dry suit exhalation valve performance check
- ☒ Buoyancy compensator manual inflator performance check
- ☒ Buoyancy compensator power inflator performance check
- ☒ Weight harness with quick release handles accessible
- ☒ All hoses tucked in for low profile
- ☒ Ankle weights on: optional
- ☒ Fins; in hand
- ☒ Gloves; in hand

Ice Rescue/Swift Water Rescue Checklist

Ice Rescue:

- ☒ Considered rescue sequence; reach, throw, row, go and helo
- ☒ No personnel on the ice unless wearing ice rescue suit, including in boats
- ☒ "Go" rescue needs one rescuer in ice rescue suit, tethered to line tender; standby rescuer in ice rescue suit, tethered to line tender

Swift Water Rescue:

All personnel near shoreline or in boats must be wearing:

- ☒ Vest type Personal Flotation Device
- ☒ Knife securely attached to Personal Flotation Device
- ☒ Whistle attached to Personal Flotation Device

- ☒ White water sporting helmet

Considerations:

- ☒ Rescue sequence: reach, throw, row, go and helo
- ☒ Are multiple downstream throw bag teams in place on both shorelines
- ☒ Is live bait rescue team in place down stream, on both shores if possible

Body Refloatation Chart

Although there is no accurate means of determining the time for a body to resurface, the following chart will give you some indication of the time. This chart only takes into account water temperature and does not take into account factors such as; what the victim ate, what he was wearing, if the victim was thin or fat, etc. It is only a general indication of the time involved.

Water Temperature	Time Interval
70°F	1 day
65°F	2 days
60°F	2-3 days
55°F	3 days
50°F	3-4 days
45°F	4-5 days
40°F & below	6 days

Ice Thickness Chart

Depth is given in inches, for ideal ice.

0-2”	Unsafe for activities
2-3”	1 person walking safely & slowly
4-5”	1 snowmobile
6-7”	Small group activities
8”	1 automobile
9”	2-3 automobiles
10”	Light trucks

Hypothermia

A lowering in body core temperature:

Acute Hypothermia – occurs within 6 hours
Sub-acute hypothermia – occurs within 6-24 hours
Chronic hypothermia – occurs within 24-48 hours

Body temp	Reaction
98.8 – 97.0	normal temp range
97.0 – 95.0	decreased manual coordination
95.0 – 93.0	loss of interest, confusion sets in
93.0 – 88.0	heart abnormalities, muscle rigidity
88.0 – 86.0	pupils dilate, severe hypothermia
86.0 & below	heart failure then death

Current Chart

Time for float To travel 100’		Current speed in knots
5 sec		12.0
6		10.0
7		8.6
8		7.5
9		6.7
10	UNSAFE	6.0
11		5.5
12		5.0
13		4.6
14		4.3
15		4.0
20		3.0
24		2.5
25		2.4
30	SAFE	2.0
40		1.5
50		1.2
60		1.0

WITNESS INTERVIEW FORM

Interview Questions

Date: _____ Incident # / Location: _____

Time of Call: _____ Time of Arrival: _____ Set Boat Time: _____

Time of Interview: _____

Witness name: _____

Witness address and phone numbers: _____

_____

How many people?: _____

_____

What were they wearing?: _____

_____

Could you see anything beyond where they were?: _____

_____

What time did this happen?: _____

_____

Where were you at the time?: _____

_____

Show me – reenact the event: _____

_____

_____

_____

_____

_____

_____

_____

_____

_____

(OVER)

What was the victim doing when the accident happened?

What was the witness doing when the accident happened?

How far away was the witness from the victim:

Weather conditions at the time of the accident:

Was victim in: Car boat swimming other

When and what has the victim had to eat or drink

Description of victim:

Name: _____

Address: _____

Sex _____ Age: _____ Hair color & length: _____ Eye color: _____

Was PFD on victim: _____

Was injury prior to submergence possible _____

Distance of victim at “last scene point” to diver tender position: _____

Compass reading from diver tender position to “last scene point” _____

This form completed by: _____

Rapid Deployment Checklist

TENDER'S CHECK OF DIVER

Diver's Name:

- ❑ Air on
- ❑ Hood in place
- ❑ Mask ready
- ❑ Gloves on
- ❑ Primary Regulator (exhale first and breathe at least 3 times)
- ❑ Pony Regulator (exhale first and breathe at least 3 times)
- ❑ Drysuit hose connected & checked
- ❑ BC inflator & check SPG
- ❑ Find 1st shears, 2nd & 3rd (w/o looking)
- ❑ Carabiner harness
- ❑ Weight belt (right hand release w/10" hanging)
- ❑ Fins
- ❑ Ankle weights
- ❑ Contingency line

TENDER'S EQUIPMENT

Tender's Name:

- ❑ PFD
- ❑ Exposure protection
- ❑ Gloves
- ❑ Time keeper
- ❑ Water activated flasher
- ❑ Eye & sun protection
- ❑ Harness (if steep embankment)
- ❑ Profile slate & pencils (2 or 3 colors)
- ❑
- ❑
- ❑
- ❑
- ❑

AT WATER SITE

- ❑ Contingency tank & regulator
- ❑ Contingency pony & regulator
- ❑ Throw rope & bag
- ❑ EMT w/gear
- ❑
- ❑
- ❑
- ❑
- ❑
- ❑
- ❑
- ❑

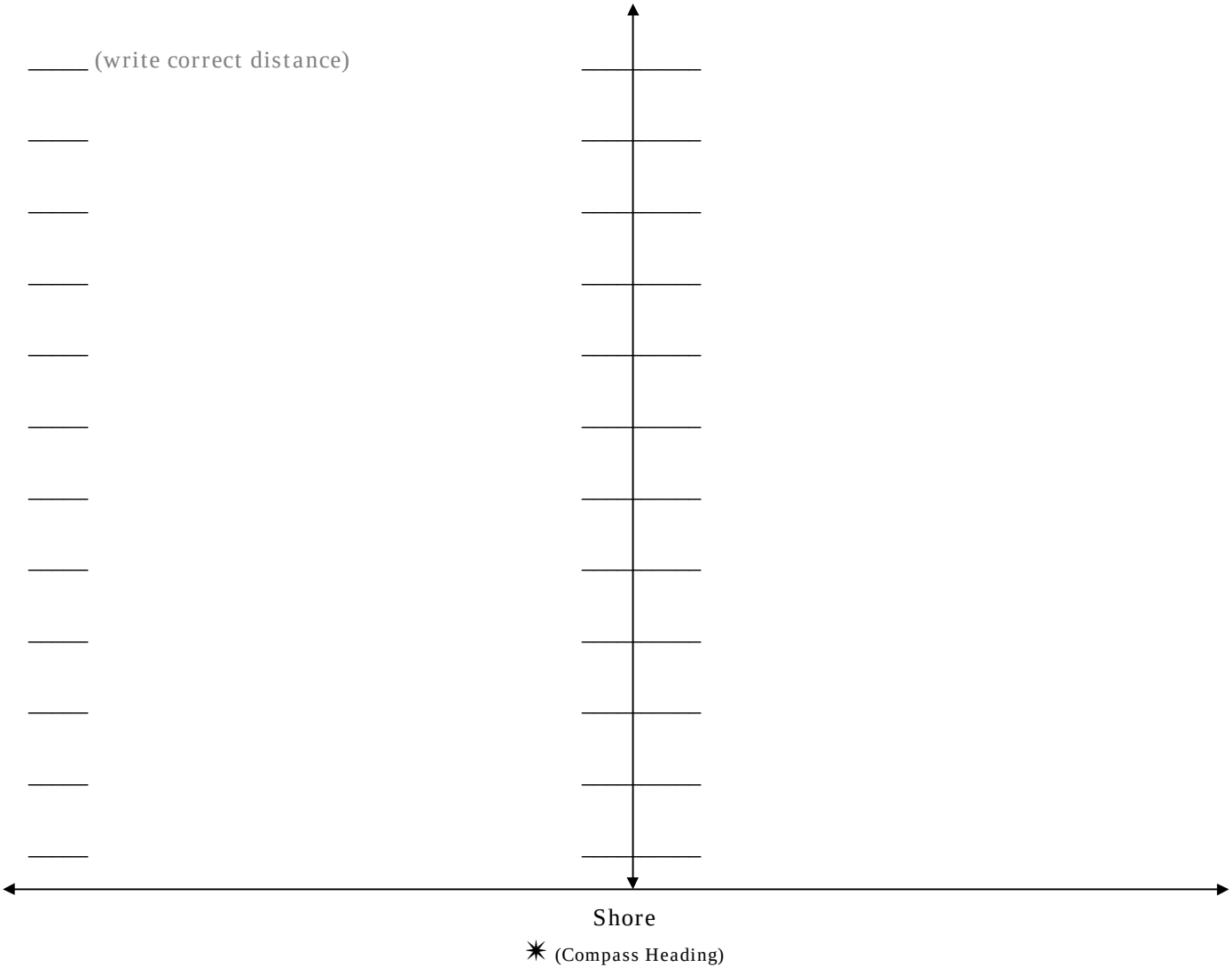
Vitals:

Diver's Name	Time	B/P	Pulse	Respiratory rate

Dive Tracking Form

Dive Profile: **Table:** RDP/Navy/_____ **Date:** **Incident #**

Dive #1	**Name**	**Time in Water**	**Press Main / Pony**	**Time on Air**	**Time Down**	**Resp Rate**	**Time Up**	**Press Main / Pony**	**Max Distance**	**Max Depth**
Diver #1										
Tender										
Backup #1										
Tender										
90% Diver										
Dive #2										
Diver #2										
Tender										
Backup #2										
Tender										
90% Diver										



Diver Rotation Chart

Location: _____

Date: _____Time: _____ Incident #: _____ Mode: Training / Rescue / Recovery

Diving Supervisor: _____ Water Site Commander: _____

Team Members at Incident:

1) _____ 8) _____

2) _____ 9) _____

3) _____ 10) _____

4) _____ 11) _____

5) _____ 12) _____

6) _____ 13) _____

7) _____ 14) _____

1st Diver _____ 1st Tender _____

2nd Diver _____ 2nd Tender _____

90% Diver _____ 90% Tender _____

50% Diver _____ 50% Tender _____

25% Diver _____ 25% Tender _____

_____

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